Adopt Chapter Env-A 4700 to read as follows:

CHAPTER Env-A 4700 CARBON DIOXIDE (CO_2) OFFSET PROJECTS

Statutory Authority: RSA 125-O:8, I(f)

PART Env-A 4701 PURPOSE AND APPLICABILITY

Env-A 4701.01 Purpose. The purpose of this chapter is to establish the criteria and procedures for the award of carbon dioxide (CO_2) offset allowances pursuant to RSA 125-O: 21, V, in order to ensure that CO_2 offset allowances awarded represent CO_2 equivalent emission reductions or carbon sequestration that are real, additional, verifiable, enforceable, and permanent within the framework of a standards-based approach.

Env-A 4701.02 Applicability.

(a) This chapter shall apply to sponsors of CO_2 offset projects or CO_2 credit retirements that have reduced or avoided atmospheric loading of CO_2, CO_2 equivalent or sequestered carbon as demonstrated in accordance with the applicable provisions of this chapter.

(b) Subject to the relevant compliance deduction limitations of Env-A 4605.04(b), CO_2 offset allowances may be used by any CO_2 budget source for compliance purposes.

PART Env-A 4702 DEFINITIONS

Env-A 4702.01 "Anaerobic digester" means a device that promotes the decomposition of organic material to simple organics and gaseous biogas products, usually accomplished by means of controlling temperature and volume, including a methane recovery system.

Env-A 4702.02 "Anaerobic digestion" means the degradation of organic material, including manure, brought about through the action of microorganisms in the absence of elemental oxygen.

Env-A 4702.03 "Anaerobic storage" means storage of organic material in an oxygen-free environment, or under oxygen-free conditions, including but not limited to, holding tanks, ponds, and lagoons.

Env-A 4702.04 "Biogas" means gas resulting from the decomposition of organic matter under anaerobic conditions, the principle constituents of which are methane and CO_2.

Env-A 4702.05 "Boiler" means a self-contained, low-pressure appliance for supplying steam or hot water to a building.

Env-A 4702.06 "Building envelope" means the elements of a building, such as walls, windows, foundations, basement slabs, ceilings, roofs, and insulation materials, that separate conditioned space from unconditioned space, semi-heated space, or the exterior of the building, through which thermal energy may be transferred to or from the exterior, unconditioned space, or conditioned space.

Env-A 4702.07 "CO_2 equivalent (CO_2e)" means the quantity of a given greenhouse gas multiplied by its global warming potential (GWP).

Env-A 4702.08 "Commercial boiler" means a boiler that serves a commercial building.

Env-A 4702.09 "Commercial building" means a building to which the provisions of ANSI/ASHRAE/IESNA Standard 90.1 apply, except low-rise residential buildings.

Env-A 4702.10 "Conflict of interest" means a situation that may arise with respect to an individual in relation to any specific project sponsor, CO_2 offset project or category of offset projects, such that the individual's other activities or relationships with other persons or organizations render or may render the individual incapable of providing an impartial certification opinion, or otherwise compromise the individual's objectivity in performing certification functions.

Env-A 4702.11 "Condensing mode" means the design and operation of furnaces or boilers in a mode that leads to the production of condensate in flue gases.

Env-A 4702.12 "Cooperating department" means a department in a state that is not a participating state but that has entered into a memorandum of understanding with the appropriate departments of all participating states to carry out certain obligations relative to CO_2 offset projects in that state, including but not limited to the obligation to perform audits of offset project sites, and to report violations of this chapter.

Env-A 4702.13 "Energy conservation measure (ECM)" means an activity or set of activities designed to increase the energy efficiency of a building or improve the management of a building's energy demand. The term includes, but is not limited to, physical changes to facility equipment, modifications to a building, revisions to operating and maintenance procedures, software changes, or new means of training or managing users of the building or operations and maintenance staff, alone or in any combination.

Env-A 4702.14 "Energy performance" means a measure of the relative energy efficiency of a building, building equipment, or building components, as measured by the amount of energy required to provide building services. For building equipment and components, this is a relative measure of the impact of equipment or components on building energy usage.

Env-A 4702.15 "Energy services" means the provision of useful energy-related services to building occupants, such as heating and hot water, cooling, and lighting.

Env-A 4702.16 "Forested condition" referring to land means that a parcel of land:

(a) Measures at least 1.0 acre in size and at least 120.0 feet wide from the outer-most edge for a continuous length of at least 363.0 feet; and

(b) Meets at least one of the following criteria:

(1) The condition is at least 10 percent stocked by trees of any size or has been at least 10 percent stocked in the past, and the condition is not subject to non-forest use(s) that prevent(s) normal tree regeneration and succession, such as regular mowing, intensive grazing, or recreational activities; or

(2) In several western woodland species where stocking cannot be determined, the condition has at least 5 percent crown cover by trees of any size, or has had at least 5 percent cover in the past, and the condition is not subject to non-forest use(s) that prevent(s) normal regeneration and succession such as regular mowing, chaining, or recreation activities.

Env-A 4702.17 "Furnace" means a self-contained, indirect-fired appliance that supplies heated air to a building through ducts to conditioned spaces and that has a heat input rate of less than 225,000 Btu/hr.

Env-A 4702.18 "Global warming potential (GWP)" means a measure of the radiative efficiency or heat-absorbing ability of a particular gas relative to that of CO_2 after taking into account the decay rate, or the amount removed from the atmosphere over a given number of years, of each gas relative to that of CO_2. For the purposes of this chapter, global warming potentials shall be consistent with the values used in the Intergovernmental Panel on Climate Change, Third Assessment Report.

Env-A 4702.19 "HVAC system" means the system or systems that provide, either collectively or individually, heating, ventilation, or air conditioning to a building, including the equipment, distribution network, and terminals.

Env-A 4702.20 "Independent verifier" means an individual who has been approved by the department to conduct verification activities.

Env-A 4702.21 "Low-rise residential buildings" means single family homes, multifamily structures of 3 stories or fewer above grade, and manufactured homes, whether modular or mobile.

Env-A 4702.22 "Market penetration rate" means a measure of the diffusion of a technology, product, or practice in a defined market, as represented by the percentage of annual sales for a product or practice, or as a percentage of the existing installed stock for a product or category of products, or as the percentage of existing installed stock that uses a practice.

Env-A 4702.23 "Non-forested condition" referring to land means that a parcel of land does not meet the definition of "forested condition." Non-forested land includes areas used for crops, improved pasture, residential areas, city parks, improved roads of any width and adjoining rights-of-way, power line clearings of any width, and non-census water as defined in Env-A 4702.24. In order for unimproved roads and non-forest strips that are intermingled in forest areas to qualify as non-forest land, each must be more than 120.0 feet wide and more than one acre in size.

Env-A 4702.24 "Non-census water" means streams, sloughs, estuaries, and canals that are more than 120 feet wide but less than 1/8-mile wide, and lakes, reservoirs, and ponds that are one to 40 acres in size.

Env-A 4702.25 "Offset project" means a project directly related to the reduction of CO_2 equivalent emissions other than from an electricity generator or the sequestration of carbon.

Env-A 4702.26 "On-site combustion" means the combustion of fossil fuel at a building to provide building services such as heating, hot water, or electricity.

Env-A 4702.27 "Passive solar" means a combination of building design features and building components that use solar energy to reduce or eliminate the need for mechanical heating and cooling and daytime artificial lighting.

Env-A 4702.28 "Permanently retired" referring to a greenhouse gas allowance or credit means a greenhouse gas allowance or credit that has been placed in a retirement account controlled by the jurisdiction that generated the allowance or credit, or has been placed in an allowance retirement account controlled by the department, or has otherwise been rendered unusable.

Env-A 4702.29 "Project commencement" means:

(a) For an offset project involving physical construction, other work at an offset project site, or installation of equipment or materials, the date of the beginning of such activity; or

(b) For an offset project that involves the implementation of a management activity or protocol,

the date on which such activity is first implemented or such protocol first used.

Env-A 4702.30 "Project sponsor" means the person proposing or undertaking the relevant eligible CO_2 offset project or CO_2 credit retirement, as represented by the CO_2 AAR for such person's general account.

Env-A 4702.31 "Regional anaerobic digester" means an anaerobic digester using feedstock from more than one agricultural operation. Regional anaerobic digesters are also commonly referred to as a "community digesters" or "centralized digesters".

Env-A 4702.32 "Renewable portfolio standard" means a statutory or regulatory requirement that a load-serving entity provide a certain portion of the electricity it supplies to its customers from renewable energy sources, or any other statutory or regulatory requirement that a certain portion of electricity supplied to the electricity grid be generated from renewable energy sources.

Env-A 4702.33 "SF_6-containing operating equipment" means any equipment used for the transmission or distribution, or both, of electricity that contains sulfur hexafluoride (SF_6).

Env-A 4702.34 "System benefits fund" means the fund created by the collection of the system benefits charge authorized by RSA 374-F:3, VI.

Env-A 4702.35 "Total solids" means the total of all solids in a sample, including total suspended solids, total dissolved solids, and volatile suspended solids.

Env-A 4702.36 "Transmission and/or distribution entity" means a legal entity having assets and equipment used to transmit or distribute electricity, or both, from an electric generator to a customer. The term includes all related assets and equipment located within the service territory of the entity, defined as the service territory of a load-serving entity specified by the state Public Utilities Commission.

Env-A 4702.37 "Verification" means the determination by an independent verifier that certain parts of a CO_2 offset project consistency application or the measurement, monitoring, and verification report conforms to the requirements of this chapter.

Env-A 4702.38 "Volatile solids" means the fraction of total solids that is comprised of organic matter.

Env-A 4702.39 "Whole-building energy performance" means the overall energy performance of a building, taking into account the integrated impact on energy usage of all building components and systems.

Env-A 4702.40 "Whole-building retrofit" means an offset project designed and intended to improve the energy performance of a building that involves the replacement of more than one building system, or set of building components.

Env-A 4702.43 "Zero net energy building" means a building designed to produce as much energy, using renewable energy sources, as the building is projected to use, as measured on an annual basis.

PART Env-A 4703 OFFSET PROJECT REQUIREMENTS AND LIMITATIONS

Env-A 4703.01 CO_2 Offset Project Eligibility Requirements. To qualify for the award of CO_2 offset allowances, an offset project shall satisfy all the applicable requirements of this part, in addition to any

project-specific requirements specified in Env-A 4705 through Env-A 4709.

Env-A 4703.02 Offset Project Types. The following types of offset projects shall be eligible for the award of CO_2 offset allowances:

(a) Landfill methane capture and destruction;

(b) Reduction in emissions of sulfur hexafluoride (SF_6);

(c) Sequestration of carbon due to afforestation;

(d) Reduction or avoidance of CO_2 emissions from natural gas, oil, or propane end-use combustion due to***:***

(1) ***Enhanced*** end-use energy efficiency ***of fossil-fueled systems; or***

(2) ***Fuel switching to a less carbon-intensive fuel for use in combustion systems, including the use of liquid or gaseous renewable fuels, provided that conversions to electricity shall not be eligible***; and

(e) Avoided methane emissions from agricultural manure management operations.

Env-A 4703.03 Offset Project Locations. To qualify for the award of CO_2 offset allowances under this chapter, eligible offset projects shall be located in any of the following locations:

(a) In New Hampshire;

(b) Partly in New Hampshire and partly in one or more other participating states, provided that the larger part of the CO_2 equivalent emissions reduction or carbon sequestration due to the offset project is projected to occur in New Hampshire; or

(c) In any state in which a cooperating department is located.

Env-A 4703.04 CO_2 Credit Retirement Eligibility.

(a) To qualify for the award of CO_2 offset allowances, CO_2 credit retirement shall satisfy all the applicable requirements of this chapter.

(b) CO_2 credit retirements shall include the permanent retirement of greenhouse gas allowances or credits issued pursuant to any governmental mandatory carbon constraining program outside the U.S. that places a specific tonnage limit on greenhouse gas emissions, provided the allowances or credits are acceptable and valid for use in that program at the time of the filing of the consistency application under Env-A 4704, or certified greenhouse gas emissions reduction credits issued pursuant to the United Nations Framework Convention on Climate Change (UNFCCC) or protocols adopted through the UNFCCC process.

(c) The department shall award CO_2 offset allowances for CO_2 credit retirements only after the occurrence of a stage 2 trigger event.

Env-A 4703.05 Limitations on Award of Offset Allowances. CO_2 offset allowances shall not be awarded to:

(a) An offset project or CO_2 credit retirement that is required pursuant to any local, state or federal

law, regulation, or administrative or judicial order;

(b) An offset project that includes an electric generation component, unless the project sponsor transfers legal rights to any and all attribute credits which may be used for compliance with a renewable portfolio standard or other regulatory requirement to the department, other than the CO_2 offset allowances awarded under Env-A 4707 generated from the operation of the offset project;

(c) An offset project that receives funding or other incentives from any system benefit fund, or funds or other incentives provided under RSA 125-O:23;

(d) An offset project or CO_2 credit retirement that is awarded credits or allowances under any other mandatory or voluntary greenhouse gas program;

(e) An offset project that was commenced prior to December 20, 2005; or

(f) Equipment, materials, items, or actions unrelated to an offset project reduction of CO_2 equivalent emissions or the sequestration of carbon, but occurring at a location where an offset project occurs, unless allowed under Env-A 4705 through Env-A 4709.

Env-A 4703.~~07~~***06*** Maximum Allowance Award Periods.

(a) Except as provided in Env-A 4703.~~08~~***07***, CO_2 offset allowances awarded by the department pursuant to Env-A 4711 shall be for an initial 10-year allocation period.

(b) At the end of the initial 10-year allocation period, if the project sponsor wishes to obtain an additional allocation, the project sponsor shall submit a consistency application pursuant to Env-A 4704 prior to the expiration of the initial allocation period.

(c) Except as provided in Env-A 4703.~~08~~***07***, CO_2 offset allowances awarded by the department pursuant to Env-A 4711 based on an application submitted pursuant to (b), above, shall be for a***n additional*** 10-year allocation period.

(d) Except as provided in Env-A 4703.~~08~~***07***, an offset project shall not be awarded CO_2 offset allowances for more than a total of 20 allocation years.

Env-A 4703.~~08~~***07*** Maximum Allowance Award Periods for Afforestation.

(a) CO_2 offset allowances awarded pursuant to Env-A 4711 for any afforestation offset project shall be for an initial 20-year allocation period.

(b) At the end of the initial 20-year allocation period, if the project sponsor wishes to obtain an additional allocation, the project sponsor shall submit a consistency application for the afforestation offset project pursuant to the requirements of Env-A 4704 prior to the expiration of the initial allocation period.

(c) CO_2 offset allowances awarded by the department pursuant to Env-A 4711 based on an application submitted pursuant to (b), above, shall be for a***n additional*** 20-year allocation period.

(d) At the end of the second 20-year allocation period, if the project sponsor wishes to obtain an additional allocation, the project sponsor shall submit a consistency application for the afforestation offset project pursuant to Env-A 4704 prior to the expiration of the second allocation period.

(e) CO_2 offset allowances awarded by the department pursuant to Env-A 4711 based on an

application submitted pursuant to (d), above, shall be for a ***third*** 20-year allocation period.

(f) In no event shall an afforestation offset project be awarded CO_2 offset allowances for more than a total of 60 allocation years.

Env-A 4703.~~09~~***08*** Inspections and Compliance.

(a) Project sponsors shall provide to the department access to the physical location of the offset project to inspect for compliance with the requirements of this chapter. For offset projects located in any state that is not a participating state, project sponsors shall also provide the cooperating department with access to the physical location of the offset project to inspect for compliance with this chapter.

(b) If at any time after the award of CO_2 offset allowances the department receives credible information that a project sponsor has not complied with the requirements of this chapter ***or that an offset project does not comply with the requirements of this chapter***, the department shall notify the original project sponsor and anyone who currently holds allowances awarded based on the project that the allowances shall not be available for compliance purposes. The notice shall also inform the recipients of the opportunity to request a hearing in accordance with the provisions of RSA 541-A and Env-C 200 applicable to adjudicative proceedings.

~~(c) If at any time after the award of CO_2 offset allowances the department receives credible information that an offset project does not comply with the requirements of this chapter, the department shall notify the original project sponsor and anyone who currently holds allowances awarded based on the project that the allowances shall not be available for compliance purposes. The notice shall also inform the recipients of the opportunity to request a hearing in accordance with the provisions of RSA 541-A and Env-C 200 applicable to adjudicative proceedings.~~

PART Env-A 4704 APPLICATION PROCESS

Env-A 4704.01 Overview of Process.

(a) The project sponsor shall establish a general account under Env-A 4607.02.

(b) All submissions required for the award of CO_2 offset allowances under this chapter shall be ~~from~~ ***sent to the department by*** the CO_2 authorized account representative ***(CO_2 AAR)*** for the general account of the project sponsor***, with an electronic copy being sent by the CO_2 AAR to the regional organization***.

(c) Consistency applications shall:

(1) Include the information specified in Env-A 4704.02 or Env-A 4704.05, or both, as applicable;

(2) Be filed by the following applicable deadline:

a. No later than ~~June 30, 2009~~ ***December 31, 2009***, for offset projects commenced prior to January 1, 2009; and

b. No later than ***December 31, 2009 or*** 6 months after the offset project is commenced, ***whichever is later,*** for offset projects commenced on or after January 1, 2009; and

(3) Include the signatures and certifications specified in Env-A 4704.03 and the verification report and certification statement specified in Env-A 4704.04.

(d) Any consistency application that is not filed by the applicable deadline specified in (c), above, shall be denied, resulting in the continued ineligibility of the subject offset project.

Env-A 4704.02 Consistency Application Contents: Offset Projects. For an offset project, the consistency application shall include the following:

(a) The project sponsor's name, mailing address, electronic mail address, daytime telephone number, facsimile transmission number, and account number;

(b) Which type of offset project as described in Env-A 4703.02 is covered by the application;

(c) A demonstration that the offset project meets all applicable requirements set forth in Env-A 4700;

(d) The supplemental information specific to the type of project as set forth in Env-A 4705 through Env-A 4709, as applicable;

(d) The emissions baseline determination as required by Env-A 4705 through Env-A 4709;

(e) An explanation of how the projected reduction or avoidance of atmospheric loading of CO_2 or CO_2 equivalent or the sequestration of carbon is to be quantified, monitored, and verified as required by Env-A 4705 through Env-A 4709;

(f) Disclosure of any voluntary or mandatory programs, other than the CO_2 budget trading program, to which greenhouse gas emissions data related to the offset project have been or will be reported;

(g) For offset projects located in a state that is not a participating state, a demonstration that the project sponsor has complied with all requirements of the cooperating department in the state where the offset project is located; and

(h) A verification report and certification statement as specified in Env-A 4704.04.

Env-A 4704.03 Signatures and Certifications of Project Sponsor. The project sponsor shall sign the following for submission with the consistency application:

(a) A completed consistency application agreement that reads as follows:

"The undersigned project sponsor recognizes and accepts that the application for, and the receipt of, CO_2 offset allowances under the CO_2 Budget Trading Program is predicated on the project sponsor following all the requirements of Env-A 4700. The undersigned project sponsor holds the legal rights to the offset project, or has been granted the right to act on behalf of a party that holds those rights. I understand that eligibility for the award of CO_2 offset allowances under Env-A 4700 is contingent upon meeting the requirements of that Chapter. I authorize the department to audit this offset project for purposes of verifying that the offset project, including the monitoring and verification plan, has been implemented as described in this application. I understand that this right to audit shall include the right to enter the physical location of the offset project. I submit to the legal jurisdiction of the state of New Hampshire."

(b) A statement and certification report certifying that all offset projects for which the sponsor has received CO_2 offset allowances under this chapter, or similar provisions in the rules of other participating states, under the sponsor's ownership or control, or under the ownership or control of any entity which controls, is controlled by, or has common control with the project sponsor, are in compliance with all applicable requirements of the CO_2 budget trading program in all participating states.

Env-A 4704.04 Signatures and Certifications of Independent Verifier.

(a) An independent verifier accredited pursuant to Env-A 4710 shall sign a verification report and certification statement for submission with the consistency application.

(b) The verification report and certification statement shall certify that the independent verifier has reviewed the entire application and evaluated the following in relation to the applicable requirements of Env-A 4703 and Env-A 4705 through Env-A 4709, and any applicable guidance issued by the department working with the regional organization:

(1) The adequacy and validity of information supplied by the project sponsor to demonstrate that the offset project meets the applicable eligibility requirements of Env-A 4703 and Env-A 4705 through Env-A 4709;

(2) The adequacy and validity of information supplied by the project sponsor to demonstrate baseline emissions pursuant to the applicable requirements of Env-A 4705 through Env-A 4709; and

(3) The adequacy of the monitoring and verification plan submitted pursuant to the applicable requirements of Env-A 4705 through Env-A 4709.

Env-A 4704.05 Consistency Application Contents: CO_2 Credit Retirement. For a CO_2 credit retirement, the consistency application shall include:

(a) The project sponsor's name, mailing address, electronic mail address, daytime telephone number, facsimile transmission number, and account number; and

(b) Sufficient information to demonstrate that the CO_2 credit:

(1) Is eligible pursuant to Env-A 4703.04;

(2) Was lawfully held by the project sponsor; and

(3) Has been permanently and irrevocably retired.

Env-A 4704.06 Prohibition Against Filing Duplicate Consistency Applications.

(a) Subject to (b), below, a consistency application shall not be submitted for an offset project if a consistency application has already been submitted for the same project, or any portion of the same project, in another participating state.

(b) A consistency application may be submitted for an offset project after rejection by another participating state if the consistency application was rejected by the other participating state solely because more of the CO_2 equivalent emissions reduction or carbon sequestration due to the offset project is projected to occur in New Hampshire than in any other participating state.

(c) A consistency application shall not be submitted for CO_2 credit retirement if a consistency application has already been submitted for the same CO_2 credit retirement in another participating state.

Env-A 4704.07 Action on Consistency Applications.

(a) Within 30 days following receipt of a consistency application filed pursuant to this part, the regional organization shall review the application to determine whether it is in an approved form and contains all information needed for the purpose of commencing review of the application.

(b) If the application is complete, the regional organization shall notify the project sponsor and the department so that a substantive review of the application as specified in (d) ~~and (e)~~, below, can proceed.

(c) If the consistency application is incomplete, the regional organization shall notify the project sponsor in writing of the deficiency or deficiencies and specify a reasonable deadline for the project sponsor to correct the deficiency/ies. ***If the project sponsor corrects the deficiency/ies by the specified deadline, the regional organization shall so report to the department, and the department shall proceed to review the application.*** If the project sponsor does not correct the deficiency/ies by the specified deadline, the regional organization shall so report to the department~~,~~ and the department shall deny the application.

~~(d) After being notified by the regional organization that a consistency application is complete, the department shall review the application to determine whether it meets the criteria specified in (f) or (g), below, as applicable. If the department determines that the information submitted is inadequate to allow the department to independently conclude that the criteria are met, the department shall direct the regional organization to request such additional information from the project sponsor as is necessary to enable the department to conclude that the criteria are met.~~

(~~e~~***d***) Within 90 days of ~~the completeness determination~~ ***being notified*** under (b) ***or (c)***, above, ***that a consistency application is complete,*** the department shall***:***

(1) Approve ~~issue a determination as to whether~~ the application ***if*** ~~meets~~ the criteria specified in (f) or (g), below, as applicable***, have been met;***

(2) Deny the application if the criteria specified in (f) or (g), below, as applicable, have not been met; or

(3) Notify the applicant in writing that additional time is needed to fully assess the application and provide an estimate of the amount of time that is needed.

(e) The department shall notify the applicant of its determination under (e)(1) or (2), above, in writing. If the ~~criteria are not met~~ ***application is denied***, the ~~determination~~ ***notification*** shall ~~identify the area(s) in which the application is deficient~~ ***specify the reasons for the denial***.

(f) A consistency application for an offset project shall be approved if the information submitted by the project sponsor demonstrates that the proposed project meets the requirements of Env-A 4703 and Env-A 4704 and the applicable requirements of Env-A 4705 through Env-A 4709.

(g) A consistency application for a CO_2 credit retirement shall be approved if the information submitted by the project sponsor demonstrates that the proposed CO_2 credit retirement:

(1) Is eligible pursuant to Env-A 4703.04;

(2) Was lawfully held by the project sponsor; and

(3) Has been permanently and irrevocably retired.

PART Env-A 4705 STANDARDS FOR LANDFILL METHANE CAPTURE AND DESTRUCTION OFFSET PROJECTS

Env-A 4705.01 Landfill Methane Capture and Destruction Projects. To qualify for the award of CO_2 offset allowances under this chapter, an offset project that captures and destroys methane (CH_4) from a landfill shall meet the requirements of this part in addition to all other applicable requirements of this chapter.

Env-A 4705.02 Eligible Landfills. The offset project shall occur at a landfill that is not required to flare emissions under the New Source Performance Standards (NSPS) for municipal solid waste landfills, 40 CFR Part 60, Subpart Cc and Subpart WWW.

Env-A 4705.03 Supplemental Information. The supplemental information required by Env-A 4704.02(d) shall include the following:

(a) The name, mailing address, electronic mail address, daytime telephone number, facsimile transmission number, and account number of each owner and each operator of the offset project, provided that if any owner or operator is the same as the project sponsor, the project sponsor's information may be cross-referenced;

(b) The location and specifications of the landfill where the offset project will occur, including the volume of waste in place;

(c) The name, mailing address, electronic mail address, daytime telephone number, facsimile transmission number, and account number of each owner and each operator of the landfill where the offset project will occur, provided that if any owner or operator is the same as the project sponsor, the project sponsor's information may be cross-referenced;

(d) A detailed narrative description of the offset project, including but not limited to:

(1) Documentation that the offset project meets the eligibility requirements of Env-A 4705.02; and

(2) Specifications of the equipment to be installed and a technical schematic of the offset project.

Env-A 4705.04 Emissions Baseline.

(a) The emissions baseline shall represent the potential fugitive landfill emissions of CH_4, in tons of CO_2e, as represented by the CH_4 collected and metered for thermal destruction as part of the offset project.

(b) The emissions baseline shall be calculated in accordance with the following:

(1) "V" means the volume of CH_4 collected in cubic feet (ft^3);

(2) "M" means the mass of CH_4 per ft^3, where the default value is 0.04246 lbs/ft^3 at 1

atmosphere and 20 degrees C;

(3) "OX" means the oxidation factor, equal to 0.10, which represents the estimated portion of collected CH_4 that would have eventually oxidized to CO_2 if not collected;

(4) "GWP" means the CO_2e global warming potential of CH_4, equal to 23; and

(5) Emissions in tons CO_2e equals the product of V times M times GWP times the result of 1 minus OX, all divided by 2000, as shown in the following equation:

Emissions (tons CO_2e) = (V x M x (1-OX) x GWP)/2000

Env-A 4705.05 Emissions Reductions.

(a) Emissions reductions shall be determined based on potential fugitive CH_4 emissions that would have occurred at the landfill if metered CH_4 collected from the landfill for thermal destruction as part of the offset project was not collected and destroyed.

(b) CO_2e emissions reductions shall be calculated as follows:

(1) "V" means the volume of CH_4 collected in cubic feet (ft^3);

(2) "M" means the mass of CH_4 per ft^3, where the default value is 0.04246 lbs/ft^3 at 1 atmosphere and 20 degrees C;

(3) "OX" means the oxidation factor, equal to 0.10, which represents the estimated portion of collected CH_4 that would have eventually oxidized to CO_2 if not collected;

(4) "C_{ef}" means the combustion efficiency of methane control technology, equal to 0.98;

(5) "GWP" means the CO_2e global warming potential of CH_4, equal to 23; and

(6) Emissions reductions in tons CO_2e equals the product of V times M times C_{ef} times GWP times the result of 1 minus OX, all divided by 2000, as shown in the following equation:

Emissions Reductions (tons CO2e) = (V x M x (1 - OX) x C_{ef} x GWP)/2000

Env-A 4705.06 Monitoring and Verification Requirements.

(a) Landfill methane capture and destruction offset projects shall employ a landfill gas collection system that provides continuous metering and data computation of landfill gas volumetric flow rate and CH_4 concentration.

(b) Annual monitoring and verification reports shall include monthly volumetric flow rate and CH_4 concentration data, including documentation that the CH_4 was actually supplied to the combustion source.

(c) The project sponsor shall submit a monitoring and verification plan as part of the consistency application which includes:

(1) A quality assurance and quality control program associated with equipment used to determine landfill gas volumetric flow rate and CH_4 composition;

(2) Provisions for ensuring that measuring and monitoring equipment is maintained, operated, and calibrated based on manufacturer recommendations;

(3) Provisions for the retention of maintenance records for audit purposes.

(d) The monitoring and verification plan required by (c), above, shall be certified by an independent verifier accredited pursuant to Env-A 4710.

(e) The project sponsor shall annually verify landfill gas CH_4 composition through landfill gas sampling and independent laboratory analysis using applicable U.S. EPA laboratory test methods.

PART Env-A 4706 STANDARDS FOR REDUCTIONS IN SULFUR HEXAFLUORIDE (SF_6) EMISSIONS OFFSET PROJECTS

Env-A 4706.01 Reduction in Sulfur Hexafluoride (SF_6) Emissions Projects. To qualify for the award of CO_2 offset allowances under this part, offset projects that reduce emissions of sulfur hexafluoride (SF_6) to the atmosphere from equipment in the electricity transmission and distribution sector, through capture and storage, recycling, or destruction, shall meet the requirements of this part in addition to all other applicable requirements of this chapter.

Env-A 4706.02 Eligible Activities.

(a) Eligible offset projects shall consist of incremental actions beyond those taken during the baseline year to achieve a reduction in SF_6 emissions relative to the baseline year. Eligible actions may include an expansion of existing actions. The identified actions to be taken shall be consistent with the guidance provided in International Electrotechnical Commission (IEC) 1634, "High-voltage switchgear and control gear—Use and handling of sulfur hexafluoride (SF_6) in high-voltage switchgear and control gear," (CEI/IEC 1634, 1995-04), and Electric Power Research Institute (EPRI), "Practical Guide to SF_6 Handling Practices," (TR-113933, 2002).

(b) Except as provided in (c), below, eligible offset projects shall have an SF_6 entity-wide emissions rate for the baseline year, calculated in accordance with Env-A 4706.03, that is less than the applicable emissions rate in Table 4706-1.

(c) An SF_6 offset project shall be eligible even if the SF_6 entity-wide emissions rate in the baseline year exceeds the applicable rate in Table 4706-1, provided that the project sponsor demonstrates that the project is being implemented at a transmission and/or distribution entity serving a predominantly urban service territory and that at least 2 of the following factors prevent optimal management of SF_6:

(1) The entity is comprised of older-than-average installed transmission and distribution equipment in relation to the national average age of equipment;

(2) A majority of the entity's electricity load is served by equipment that is located underground, and poor accessibility of such underground equipment precludes management of SF_6 emissions through regular ongoing maintenance;

(3) The inability to take a substantial portion of equipment out of service, as such activity would impair system reliability; and

(4) Required equipment purpose or design for a substantial portion of entity transmission

and distribution equipment results in inherently leak-prone equipment.

Env-A 4706.03 Calculations of Emissions Baseline, Emissions Rates, and Emissions Reductions.

(a) If the consistency application is filed after ~~June 30, 2009~~ ***December 31, 2009***, baseline SF_6 emissions shall be determined based on annual entity-wide reporting of SF_6 emissions for the calendar year immediately preceding the calendar year in which the consistency application is filed, which is designated the baseline year. If the consistency application is filed ~~by June 30, 2009~~ ***on or before December 31, 2009***, the baseline year shall be no earlier than 2005.

(b) The reporting entity shall systematically track and account for all entity-wide uses of SF_6 in order to determine entity-wide emissions of SF_6. The scope of such tracking and accounting shall include all electric transmission and distribution assets and all SF_6-containing and SF_6-handling equipment owned and/or operated by the reporting entity.

(c) SF_6 emissions shall be calculated based on the following mass balance method, where all SF_6 values are in pounds (lbs.):

(1) "V_{iby}" means the SF_6 inventory in cylinders, gas carts, and other storage containers, but not in SF_6-containing operating equipment, at the beginning of the reporting year;

(2) "V_{iey}" means the SF_6 inventory in cylinders, gas carts, and other storage containers, but not in SF_6-containing operating equipment, at the end of the reporting year;

(3) "ΔI" means the change in inventory, or V_{iby} minus V_{iey} , such that the change in inventory will be negative if the quantity of SF_6 gas in storage increases over the course of the year;

(4) "PA_{psd}" means SF_6 purchased from suppliers or distributors in cylinders;

(5) "PA_e" means SF_6 provided by equipment manufacturers with or inside SF_6-containing operating equipment;

(6) "PA_{rre}" means SF_6 returned to the reporting entity after off-site recycling;

(7) "P&A" means purchases and acquisitions of all SF_6 gas acquired from other parties during the reporting year, as contained in storage containers or SF_6-using operating equipment, calculated as the sum of PA_{psd} plus PA_e plus PA_{rre};

(8) "SD_{op}" means sales of SF_6 to other parties, including gas left in SF_6-containing operating equipment that is sold;

(9) "SD_{rs}" means returns of SF_6 to the supplier, such as the producer or distributor;

(10) "SD_{df}" means SF_6 sent to destruction facilities;

(11) "SD_{sor}" means SF_6 sent off-site for recycling;

(12) "S&D" means sales and disbursements of all SF_6 gas sold or otherwise disbursed to other parties during the reporting year, as contained in storage containers and SF_6-using operating equipment, calculated as the sum of SD_{op} plus SD_{rs} plus SD_{df} plus SD_{sor};

(13) "CNP_{ne}" means the total SF_6 nameplate capacity of all new SF_6-containing operating equipment at proper full charge, as clarified in (f), below;

(14) "CNP_{rse}" means the total SF_6 nameplate capacity of all retired or sold SF_6-containing operating equipment at proper full charge, as clarified in (f), below;

(15) "ΔNPC" means the change in total SF_6 nameplate capacity of equipment, or CNP_{ne} minus CNP_{rse} , such that quantity will be negative if the retired equipment has a total nameplate capacity larger than the total nameplate capacity of the new equipment; and

(16) SF_6 emissions in pounds (lbs.) equals the change in SF_6 inventory (ΔI) plus the SF_6 purchases and acquisitions (P&A) minus the SF_6 sales and disbursements (S&D) minus the change in total SF_6 nameplate capacity of equipment (ΔNPC), as shown in the following equation:

SF_6 Emissions (lbs.) = ΔI + P&A - S&D - ΔNPC

(d) CO_2e emissions in tons shall be calculated by multiplying the CO_2e global warming potential of SF_6 (GWP), which equals 22,200, by the SF_6 emissions calculated in accordance with (c), above, and dividing by 2000, as shown in the following equation:

Emissions (tons CO2e) = SF_6 Emissions (lbs.) x GWP / 2000

(e) The entity-wide SF_6 emissions rate as a percent shall be calculated by dividing the total SF_6 emissions for the reporting year by the total SF_6 nameplate capacity at the end of the reporting year, as shown in the following equation:

$$SF_6 \text{ Emissions Rate (percent)} = \frac{\text{Total } SF_6 \text{ Emissions for Reporting Year}}{\text{Total } SF_6 \text{ Nameplate Capacity at End of Reporting Year}} \text{ X } 100$$

(f) For purposes of (c), above, "SF_6 nameplate capacity" means all SF_6-containing equipment owned and/or operated by the entity, at full and proper SF_6 charge of the equipment. The actual charge of the equipment shall not be used as the nameplate capacity, as it could reflect leakage.

(g) Emissions reductions, or the annual entity-wide reductions of SF_6 emissions for the reporting entity relative to the reporting entity's SF_6 emissions in the baseline year, shall be determined by subtracting the reporting entity's total pounds of SF_6 emissions in the reporting year from the reporting entity's total pounds of SF_6 emissions in the baseline year, as determined pursuant to (c), above, and multiplying the result by the CO_2e global warming potential of SF_6 (GWP), which equals 22,200, and dividing by 2000, as shown in the following equation:

Emissions Reduction (tons CO_2e) = (Total Pounds of SF_6 Emissions in Baseline Year – Total Pounds of SF_6 Emissions in Reporting Year) x GWP / 2000

Env-A 4706.04 <u>SF_6 Emissions Rate Performance Standards</u>.

(a) The SF_6 emissions rate performance standards shall be based on weighted average 2004 emissions rates for U.S. EPA SF_6 Partnership utilities in each region, except that if the weighted average emissions rate in a region is higher than the national weighted average, the default performance standard shall be the national weighted average emissions rate.

(b) The SF_6 emissions rate performance standards shall be as specified in Table 4706-1, where the states in each region are as specified in Table 4706-2:

Table 4706-1 Emissions Rate Performance Standards

Area	Emission Rate
Region A	9.68 percent
Region B	5.22 percent
Region C	9.68 percent
Region D	5.77 percent
Region E	3.65 percent
U.S. (National)	9.68 percent

Table 4706-2 States in Each Emission Region

Region A	Region B	Region C	Region D	Region E
Connecticut	Alabama	Colorado	Arkansas	Alaska
Delaware	District of Columbia	Illinois	Iowa	Arizona
Maine	Florida	Indiana	Kansas	California
Massachusetts	Georgia	Michigan	Louisiana	Hawaii
New Jersey	Kentucky	Minnesota	Missouri	Idaho
New York	Maryland	Montana	Nebraska	Nevada
New Hampshire	Mississippi	North Dakota	New Mexico	Oregon
Pennsylvania	North Carolina	Ohio	Oklahoma	Washington
Rhode Island	South Carolina	South Dakota	Texas	
Vermont	Tennessee	Utah		
	Virginia	Wisconsin		
	West Virginia	Wyoming		

Env-A 4706.05 Supplemental Information. The supplemental information required by Env-A 4704.02(d) shall include the following:

(a) The name(s) mailing address, electronic mail address, daytime telephone number, facsimile transmission number, and account number of each owner and each operator of the transmission and/or distribution entity, provided that if any owner or operator is the same as the project sponsor, the project sponsor's information may be cross-referenced;

(b) A detailed narrative of the offset project, including a description of the transmission and/or distribution entity suitable in detail to specify the service territory served by the entity; and

(c) The documentation required by Env-A 4706.06 to support the emissions calculations.

Env-A 4706.06 Monitoring and Verification Requirements.

(a) The project sponsor shall provide a monitoring and verification plan as part of the consistency application, which includes:

(1) An SF_6 inventory management and auditing protocol; and

(2) A process for quality assurance and quality control of inventory data.

(b) The monitoring and verification report shall be certified by an independent verifier accredited pursuant to Env-A 4610.

(c) The annual monitoring and verification report required by Env-A 4711.02(b) shall include supporting material detailing the data and calculations used to determine SF_6 emissions reductions.

(d) The project sponsor shall identify each facility managed by the entity from which or to which any SF_6 gas is procured or disbursed.

(e) The project sponsor shall maintain an entity-wide log of all SF_6 gas procurements and disbursals, which includes the following:

(1) The weight of each cylinder transported before shipment from the facility or facilities and the weight of each cylinder after return to the facility or facilities;

(2) A specific cylinder log for each cylinder that is used to fill equipment with SF_6 or reclaim SF_6 from equipment, which shall:

a. Be retained with the cylinder;

b. Indicate the location and specific identifying information of the equipment being filled, or from which SF_6 is reclaimed, and the weight of the cylinder before and after this activity; and

c. Be returned with the cylinder to the facility when the activity is complete or the cylinder is empty; and

(3) A current entity-wide inventory of all SF_6-containing operating equipment and all other SF_6-related items, including cylinders, gas carts, and other storage containers used by the entity, which is certified by an independent verifier accredited pursuant to Env-A 4610.

PART Env-A 4707 STANDARDS FOR SEQUESTRATION OF CARBON DUE TO AFFORESTATION OFFSET PROJECTS

Env-A 4707.01 Sequestration of Carbon Due to Afforestation. To qualify for the award of CO_2 offset allowances under this chapter, offset projects that sequester carbon through the conversion of land from a non-forested to forested condition shall meet the requirements of this part and all other applicable requirements of this chapter.

Env-A 4707.02 Eligible Afforestation Projects.

(a) Eligible offset projects shall occur on land that has been in a non-forested state for at least 10 years preceding the commencement of the offset project.

(b) Eligible offset projects shall be managed in accordance with widely accepted environmentally sustainable forestry practices and designed to promote the restoration of native forests by using mainly native species and avoiding the introduction of invasive non-native species, consistent with the Forest Stewardship Council (FSC), Sustainable Forestry Institute (SFI), or American Tree Farm System (ATFS) practices.

(c) If commercial timber harvest activities are to occur on the property that is the subject of the offset project, certification that the activities will comply with (b), above, shall be obtained from the timber harvester prior to any harvest activities at the site.

Env-A 4707.03 Supplemental Information. The supplemental information required by Env-A 4704.02(d) shall include the following:

(a) The name mailing address, electronic mail address, daytime telephone number, facsimile transmission number, and account number of each owner of land within the offset project boundary, provided that if any owner is the same as the project sponsor, the project sponsor's information may be cross-referenced;

(b) A detailed map, to scale and with dimensions shown, of the land within the offset project boundary and areas bordering the offset project boundary;

(c) A copy of the permanent conservation easement required pursuant to Env-A 4707.07;

(d) For offset projects located in a state that is not a participating state, a written legal opinion from an attorney licensed to practice in the state where the offset project is located, or from the cooperating department, confirming the enforceability of the permanent conservation easement;

(e) A list of the plant species to be planted or established via natural regeneration; and

(f) A forest management plan consistent with the requirements of Env-A 4707.06.

Env-A 4707.04 Carbon Sequestration Baseline Determination.

(a) The existing sequestered carbon, or carbon sequestration baseline, within the offset project boundary shall be calculated prior to commencement of the offset project in accordance with this section.

(b) The carbon sequestration baseline shall be determined based on a sum of measurements, made no more than 12 months prior to offset project commencement, of the carbon content of the following carbon pools:

(1) Live above-ground tree biomass;

(2) Live below-ground tree biomass;

(3) Soil carbon;

(4) Dead organic matter consisting of coarse woody debris, unless the baseline measurement for this carbon pool is at or near zero, in which case measurement of this carbon pool during the allocation period is optional; and

(5) At the option of the project sponsor, live above-ground non-tree biomass and forest floor dead organic matter other than coarse woody debris.

(c) Carbon content shall be calculated individually for each carbon pool within the offset project boundary.

(d) To increase the accuracy of measurement and verification, the area within the offset project

boundary shall be divided into sub-populations that form relatively homogenous units. When defining sub-populations, the project sponsor shall consider vegetation and tree species, including existing vegetation and trees and those to be used as part of the offset project activity, and site factors, such as soil type, elevation, slope, age class, and other factors as warranted.

(e) Each individual carbon pool to be measured shall be directly measured using a measurement protocol and sample size that achieves a demonstrated quantified accuracy for the combined carbon pool measurement such that there is 95 percent confidence that the resulting reported value is within 10 percent of the true mean. Measurement and sampling practices shall meet the following requirements:

(1) An adequate sample size shall be determined for each sub-population; and

(2) The minimum number of required sampling plots for each sub-population shall be the greater of 30 or the number calculated as follows:

a. "n" means the required number of sample plots for each reporting sub-population;

b. "s" means the standard deviation;

c. "mean" means the mean reported carbon content for the sample population;

d. "re" means the level of sampling error (0.08) to assure a total maximum error of 10 percent for the 95 per cent confidence interval, which assumes total error due to measurement error of 0.02; and

e. The required number of sample plots equals the product of the standard deviation times 1.960 divided by the product, raised to the second power, of the mean times the level of sampling error, as shown in the following equation:

$$n = [(s \times 1.960)/(\text{mean} \times re)]^2$$

(f) Direct measurement procedures shall be consistent with current good forestry practice and the guidance contained in U.S. Department of Energy, Technical Guidelines Voluntary Reporting of Greenhouse Gases (1605(b)) Program; chapter 1, Emissions Inventories; Part 1 Appendix: Forestry; Section 3: Measurement Protocols for Forest Carbon Sequestration (March 2006).

(g) Sequestered carbon for each carbon pool in each reporting sub-population shall be calculated as follows:

(1) "A" means the area in hectares within each reporting sub-population;

(2) "C" means the carbon content in metric tons of carbon for each carbon pool;

(3) "C/ha" means the mean carbon content per hectare for each carbon pool; and

(4) The sequestered carbon in tons for each carbon pool is determined by multiplying the product of the area times the mean carbon content per hectare by 44 divided by 12, and dividing the result by 0.9072, as shown in the following equation:

$$CO_2 \text{ tons} = [(A \times C/ha)(44/12)] / 0.9072$$

(h) Total carbon contained within the offset project boundary, represented in CO_2 tons, calculated

pursuant to (g), above, shall be calculated as follows:

(1) "TC_{pb}" means the total carbon content within the offset project boundary, which is the sum of carbon content of all carbon pools in all reporting sub-populations;

(2) "TC_{latb}" means the sum of carbon content of live above-ground tree biomass in all reporting sub-populations;

(3) "TC_{lbtb}" means the sum of carbon content of live below-ground tree biomass in all reporting sub-populations;

(4) "TC_{s}" means the sum of carbon content of soil carbon in all reporting sub-populations;

(5) "TC_{lantb}" means the sum of carbon content of live above-ground non-tree biomass in all reporting sub-populations;

(6) "TC_{doff}" means the sum of carbon content of forest floor dead organic matter other than coarse woody debris in all reporting sub-populations, if measured;

(7) "TC_{docwd}" means the sum of carbon content of coarse woody debris dead organic matter in all reporting sub-populations, unless calculation is not required pursuant to (b)(4), above; and

(8) The total carbon content is the sum of each of the factors listed above, as shown in the following equation:

$$TC_{pb} = TC_{latb} + TC_{lbtb} + TC_{s} + TC_{lantb} + TC_{doff} + TC_{docwd}$$

Env-A 4707.05 Calculating Carbon Sequestered.

(a) Carbon sequestration shall be determined using a base year approach, where the amount of carbon sequestered is measured as a net increase in carbon relative to the base year measurement, based upon aggregate carbon uptake and carbon emissions for the sum of carbon pools, relative to the baseline carbon content or the carbon content as of the previous reporting period, if above the baseline carbon content, as applicable.

(b) CO_2 offset allowances shall be issued based on the amount of net additional carbon sequestered within the offset project boundary during each reporting period, as represented in tons of CO_2.

(c) Sequestered carbon shall be calculated using a stock-change approach, as follows:

(1) "t" means the current reporting period;

(2) "NCS_t" means the net carbon sequestered in the current reporting period ;

(3) "I_t" means the inventory of carbon stock for all carbon pools in all reporting sub-populations within the offset project boundary in the current reporting period;

(4) "I_{t-1}" means the inventory of carbon stock for all carbon pools in all reporting sub-populations within the offset project boundary in the reporting period immediately preceding the current reporting period; and

(5) The net carbon sequestered in the current reporting period equals the inventory of carbon stock for all carbon pools in all reporting sub-populations within the offset project boundary in the current reporting period minus the inventory of carbon stock for all carbon pools in all reporting sub-populations within the offset project boundary in the reporting period immediately preceding the current reporting period, as shown in the following equation:

$$NCS_t = I_t - I_{t-1}$$

(d) Except as provided in Env-A 4707.04(b)(4), each of the carbon pools that were measured as part of the baseline determination shall be re-measured using the same methodology, and to the same or better quantified precision consistent with the requirements of Env-A 4707.04(e) and (f), as that used for the baseline determination.

(e) The net change in each carbon pool's carbon stock in each reporting sub-population shall be calculated by subtracting the baseline carbon stock, or the carbon stock at the previous monitoring, if above the baseline carbon content, from the carbon stock at the time of the current monitoring. Determination of carbon stock shall be in accordance with the formulas and procedures in Env-A 4707.04.

(f) Net carbon stock change for the offset project shall be the sum of the net changes in the carbon stock of all applicable pools in all reporting sub-populations within the offset project boundary, less 10 percent to account for potential losses of sequestered carbon. This 10 percent deduction shall not be required if the project sponsor retains long-term insurance and submits proof of such insurance to the regional organization that guarantees replacement of any lost sequestered carbon for which CO_2 offset allowances were awarded pursuant to the requirements of Env-A 4707 and Env-A 4711.

Env-A 4707.06 Monitoring and Verification Requirements.

(a) Total carbon stock within the offset project boundary shall be calculated not less than once every 5 years.

(b) Monitoring and verification reports shall include data from direct measurement of carbon content for all plots used to determine baseline and reporting period carbon content.

(c) The consistency application shall include a monitoring and verification plan certified by an independent verifier accredited pursuant to Env-A 4710.

(d) The monitoring and verification plan shall include the following:

(1) Direct carbon measurement procedures consistent with the requirements of Env-A 4707.04(f);

(2) The designation of sub-populations pursuant to Env-A 4707.04(d);

(3) The determination of the minimum number of sampling plots pursuant to Env-A 4707.04(e); and

(4) If commercial timber harvest activities have occurred or will occur, an assessment of management practices to ensure that the offset project has been or will be managed in accordance with environmentally sustainable forestry practices consistent with the Forest Stewardship Council (FSC), Sustainable Forestry Institute (SFI), American Tree Farm System (ATFS), or such other similar organizations.

Env-A 4707.07 Carbon Sequestration Permanence. A carbon sequestration due to afforestation offset project shall meet the following requirements to address the permanence of the sequestered carbon:

(a) The project sponsor shall:

(1) Place the land within the offset project boundary under a legally binding, permanent conservation easement that requires the land to be maintained in a forested state in perpetuity; and

(2) Submit a copy of the easement document to the regional organization;

(b) The conservation easement shall include a requirement that the carbon density within the offset project boundary shall be maintained at long-term levels at or above that achieved as of the end of the CO_2 offset crediting period pursuant to Env-A 4703.~~08~~***07***; and

(c) The conservation easement shall require the land to be managed in accordance with environmentally sustainable forestry practices.

PART Env-A 4708 STANDARDS FOR REDUCTION OR AVOIDANCE OF CO_2 EMISSIONS DUE TO END-USE ENERGY EFFICIENCY OFFSET PROJECTS

Env-A 4708.01 Reduction or Avoidance of CO_2 Emissions from Natural Gas, Oil, or Propane End-Use Combustion Due to End-Use Energy Efficiency. To qualify for the award of CO_2 offset allowances under this chapter, offset projects that reduce CO_2 emissions by reducing on-site combustion of natural gas, oil, or propane for end-use in an existing or new commercial or residential building by improving the energy efficiency of fuel usage and/or the energy-efficient delivery of energy services shall meet the requirements of this part and all other applicable requirements of this chapter.

Env-A 4708.02 Eligible Buildings and Projects.

(a) Eligible new buildings shall be limited to:

(1) New buildings that are designed to replace an existing building on the offset project site; and

(2) New buildings designed to be zero net energy buildings.

(b) Eligible offset projects shall reduce CO_2 emissions through one or more of the following energy conservation measures (ECMs):

(1) Improvements in the energy efficiency of combustion equipment that provide space heating or hot water, or both, including a reduction in fossil fuel consumption through the use of renewable energy;

(2) Improvements in the efficiency of heating distribution systems, including proper sizing and commissioning of heating systems;

(3) Installation or improvement of energy management systems;

(4) Improvement in the efficiency of hot water distribution systems and reduction in demand for hot water;

(5) Measures that improve the thermal performance of the building envelope and/or reduce building envelope air leakage;

(6) Measures that improve the passive solar performance of buildings and use of active heating systems using renewable energy; and

(7) Fuel switching to a less carbon-intensive fuel for use in combustion systems, including the use of liquid or gaseous renewable fuels, provided that conversions to electricity shall not be eligible.

Env-A 4708.03 Performance Standards. All end-use energy efficiency offset projects shall meet the following performance criteria:

(a) Any combustion equipment and related air handling equipment (HVAC systems) installed as part of an offset project shall be sized and installed in accordance with the following installation best practices, as applicable:

(1) Commercial HVAC systems shall meet the applicable sizing and installation requirements of ANSI/ASHRAE/IESNA Standard 90.1-2004: Energy Standard for Buildings Except Low-Rise Residential Buildings and ANSI/ASHRAE Standard 62.1-2004: Ventilation for Acceptable Indoor Air Quality; and

(2) Residential HVAC systems shall meet the applicable sizing specifications of Air Conditioner Contractors of America (ACCA) Manual J: Residential Load Calculation (Eighth Edition), and the applicable installation specifications of "Specification of Energy-Efficient Installation and Maintenance Practices for Residential HVAC Systems," Consortium for Energy Efficiency, 2000.

(b) Eligible new buildings or whole-building retrofits that are part of an offset project shall meet the following whole building energy performance requirements, as applicable:

(1) Subject to (2), below, commercial buildings shall exceed by 30% the energy performance requirements of ANSI/ASHRAE/IESNA Standard 90.1-2004: Energy Standard for Buildings Except Low-Rise Residential Buildings;

(2) Multi-family residential buildings classified as commercial by ANSI/ASHRAE/IESNA Standard 90.1-2004 shall exceed the energy performance requirements specified in (1), above, by 20%; and

(3) Residential buildings shall exceed the energy performance requirements of the 2004 International Energy Conservation Code Supplement by 30%.

Env-A 4708.04 Offset Projects Commenced Before January 1, 2009.

(a) Energy conservation measures implemented as part of an offset project commenced before January 1, 2009 shall meet the performance and prescriptive criteria set forth in this section.

(b) Commercial boilers shall meet or exceed the energy efficiency criteria in Table 4708-1, below, subject to the requirements in (c) and (d), below:

Table 4708-1: Minimum Commercial Boiler Energy Efficiency Criteria

Technology	Size (Btu/hr)	Rating Method	Minimum Efficiency
Gas-fired	125,000-300,000	AFUE	≥ 88.0%
	300,000-12,500,000	Thermal Efficiency	≥ 90.0%
Oil-fired	>300,000	Thermal Efficiency	≥ 88.0%

(c) Gas-fired boilers shall be installed with controls that allow the boiler to operate in condensing mode and with vents designed for positive vent static pressure and vent gas temperature that leads to condensate production in the vent.

(d) Thermal Efficiency is the useful energy output in Btu divided by energy input in Btu, and expressed as a percentage. Thermal efficiency shall be measured under steady state conditions, at full-rated useful thermal output, 140°F supply water temperature from, and 120°F return water temperature to, the boiler.

(e) Residential combustion equipment, including furnaces, boilers, and water heaters, shall meet or exceed the energy efficiency criteria in Table 4708-2, below:

Table 4708-2 Minimum Residential Combustion Equipment Energy Efficiency Criteria

Technology	Size	Rating Method	Minimum Efficiency
Gas-fired furnace	< 225,000 Btu/hr	AFUE	≥ 94%
Oil-fired furnace	< 225,000 Btu/hr	AFUE	≥ 92%
Gas/oil-fired boiler	< 300,000 Btu/hr	AFUE	≥ 90%
Gas/oil-fired water heater	subject to 10 CFR 430	Energy Factor	≥ 0.62

(f) All other energy conservation measures implemented as part of an offset project initiated prior to January 1, 2009 shall meet the applicable prescriptive requirements specified in Energy Benchmark for High Performance Buildings, Version 1.1, New Buildings Institute, 2005 (EBHPB), or state building energy codes, whichever result in better energy performance.

(g) Energy conservation measures without specified performance criteria in the EBHPB shall meet the requirements of Federal Energy Management Program (FEMP) Product Energy Efficiency Recommendations, issued pursuant to Executive Orders 13123 and 13221, or Energy Star criteria issued jointly by the U.S. EPA and U.S. Department of Energy, whichever result in better energy performance.

Env-A 4708.05 Offset Projects Commenced After January 1, 2009. For offset projects initiated on or after January 1, 2009, the project sponsor shall demonstrate that the energy conservation measures implemented as part of the offset project have a market penetration rate of less than 5 percent.

Env-A 4708.06 Supplemental Information. The supplemental information required by Env-A 4704.02(d) shall include the following:

(a) The location and specifications of each building where the offset project actions will occur;

(b) The name, mailing address, electronic mail address, daytime telephone number, facsimile transmission number, and account number of each owner and each operator of each building, provided that

if any owner or operator is the same as the project sponsor, the project sponsor's information may be cross-referenced;

(c) The name, mailing address, electronic mail address, daytime telephone number, facsimile transmission number, and account number of each person implementing the offset project, including each lead contractor, each subcontractor, and each consulting firm, provided that if any such person is the same as the project sponsor, the project sponsor's information may be cross-referenced;

(d) Specifications of equipment and materials to be installed as part of the offset project; and

(e) Building plans and offset project technical schematics, as applicable.

Env-A 4708.07 Emissions Baseline Determination.

(a) The emissions baseline shall be determined in accordance with this section, based on energy usage in MMBtu by fuel type for each energy conservation measure, derived using historic fuel use data from the most recent calendar year for which data are available, and multiplied by an emissions factor and oxidation factor for each respective fuel.

(b) The emission and oxidation factors shall be as specified in Table 4708-3, below:

Table 4708-3 Emissions and Oxidation Factors

Fuel	Emissions Factor (lbs. CO2/MMBtu)	Oxidation Factor
Natural Gas	116.98	0.995
Propane	139.04	0.995
Distillate Fuel Oil	161.27	0.99
Kerosene	159.41	0.99

(c) The baseline energy usage of the application to be targeted by the energy conservation measure shall be isolated in a manner consistent with the provisions of Env-A 4708.09(e).

(d) Annual baseline energy usage shall be determined as follows:

(1) "BEU_{AECM}" means the annual pre-installation baseline energy use by fuel type in MMBtu attributable to the application(s) to be targeted by the energy conservation measure(s). If applicable building codes or equipment standards require that equipment or materials installed as part of the offset project meet certain minimum energy performance requirements, baseline energy usage for the application shall assume that equipment or materials are installed that meet such minimum requirements. For offset projects that replace existing combustion equipment, the assumed minimum energy performance required by applicable building codes or equipment standards shall be that which applies to new equipment that uses the same fuel type as the equipment being replaced;

(2) "A" means adjustments, determined in accordance with the applicable requirements of Env-A 4708.09, to account for differing conditions during the two time periods, pre-installation and post-installation, such as weather, building occupancy, and changes in building use or function; and

(3) Energy usage shall be the product of the annual pre-installation baseline energy use by

fuel type times the adjustments, as shown in the following equation:

$$\text{Energy Usage (MMBtu)} = BEU_{AECM} \times A$$

(e) Annual baseline emissions shall be determined as follows:

(1) "i" means the type of fuel;

(2) "BEU_i" means the annual baseline energy usage for each fuel type in MMBtu, determined in accordance with Env-A 4708.09;

(3) "EF_i" means the emissions factor in lbs. CO2/MMBtu for each fuel type, from Table 4708-3;

(4) "OF_i" means the oxidation factor for each fuel type, from Table Env-A 4708-3; and

(5) The annual baseline emissions is the sum for all fuel types of the product of the annual baseline energy usage times the emissions factor times the oxidation factor, as shown in the following equation:

$$\text{Emissions (lbs. CO2)} = \sum_{i=1}^{n} BEU_i \times EF_i \times OF_i$$

Env-A 4708.08 Calculating Emissions Reductions.

(a) Emissions reductions shall be determined based upon annual energy savings by fuel type in MMBtu for each energy conservation measure, multiplied by the emissions factor and oxidation factor for the respective fuel type from Table 4708-3.

(b) Annual energy savings shall be determined as follows:

(1) "BEU_{AECM}" means the annual pre-installation baseline energy use by fuel type in MMBtu, calculated pursuant to Env-A 4708.09;

(2) "$PIEU_{ECM}$" means the annual post-installation energy use by fuel type in MMBtu attributable to the energy conservation measure, determined in accordance with the applicable requirements of Env-A 4708.09;

(3) "A" means adjustments to account for any differing conditions during the pre-installation and post-installation time periods, such as weather, building occupancy, and changes in building use or function, determined in accordance with the applicable requirements of Env-A 4708.09; and

(4) Energy savings equals the product of the annual pre-installation baseline energy use by fuel type times the adjustments minus the product of the annual post-installation baseline energy use by fuel type times the adjustments, as shown in the following equation:

$$\text{Energy Savings (MMBtu)} = (BEU_{AECM} \times A) - (PIEU_{ECM} \times A)$$

(c) Annual emissions reductions shall be determined as follows:

(1) "i" means the fuel type;

(2) "ES_i" means energy savings for each fuel type in MMBtu, demonstrated pursuant to the requirements of Env-A 4708.09;

(3) "EF_i" means the emissions factor in lbs. CO2/MMBtu for each fuel type, from Table 4708-3;

(4) "OF_i" means the oxidation factor for each fuel type, from Table 4708-3; and

(5) Emissions reductions shall be the sum, for all fuel types, of the product of the energy savings times the emissions factor times the oxidation factor, as shown in the following equation:

$$\text{Emissions Reduction (lbs. CO2)} = \sum_{i=1}^{n} ES_i \times EF_i \times OF_i$$

Env-A 4708.09 Monitoring and Verification Requirements.

(a) As part of the consistency application, the project sponsor shall provide a monitoring and verification plan certified by an independent verifier accredited pursuant to Env-A 4710.

(b) Annual monitoring and verification reports required by Env-A 4711.02(b) shall be certified by an independent verifier accredited pursuant to Env-A 4710.

(c) The independent verifiers shall conduct a site audit when reviewing the first monitoring and verification report submitted by the project sponsor, except for offset projects that save less than 1,500 MMBtu per year. For offset projects that save less than 1,500 MMBtu per year, a site audit pursuant to (c), above, shall not be required provided the project sponsor provides the independent verifier with equipment specifications and copies of equipment invoices and other relevant offset project-related invoices.

(d) All offset project documentation, including the consistency application and monitoring and verification reports, shall be signed by a Professional Engineer, identified by license number.

(e) Monitoring and verification of energy usage shall be demonstrated through a documented process consistent with the following protocols and procedures, as applicable:

(1) Subject to (2), below, the determination of baseline energy usage for existing commercial buildings shall be consistent with the International Performance Measurement & Verification Protocol, Volume I: Concepts and Options for Determining Energy and Water Savings (IPMVP), "Option B. Retrofit Isolation" and "Option D. Calibrated Simulation";

(2) If a building project involves only energy conservation measures implemented as part of a CO_2 offset project, a process consistent with IPMVP "Option C. Whole Facility" may be used, as applicable, provided that the application of the IPMVP general guidance shall be consistent with the applicable detailed specifications in ASHRAE Guideline 14-2002, Measurement of Energy and Demand Savings;

(3) For new commercial buildings, determination of baseline energy usage shall be consistent with the International Performance Measurement & Verification Protocol, Volume III: Concepts and Options for Determining Energy Savings in New Construction (IPMVP), "Option D. Calibrated Simulation", provided that the application of the IPMVP general guidance shall be consistent with the applicable detailed specifications in ASHRAE Guideline

14-2002, Measurement of Energy and Demand Savings; and

(4) For existing and new residential buildings, determination of baseline energy usage shall be consistent with the requirements of the RESNET National Home Energy Rating Technical Guidelines, 2006 (chapter 3 and Appendix A of 2006 Mortgage Industry National Home Energy Rating System Standards).

(f) In calculating both baseline energy usage and energy savings, the applicant shall isolate the impact of each eligible energy conservation measure (ECM), either through direct metering or energy simulation modeling. For offset projects with multiple ECMs, and where individual ECMs can affect the performance of others, the sum of energy savings due to individual ECMs shall be adjusted to account for the interaction of ECMs in accordance with the following:

(1) For commercial buildings, the process shall be consistent with the requirements of ASHRAE Guideline 14-2002, Measurement of Energy and Demand Savings, and ANSI/ASHRAE/IESNA Standard 90.1-2004: Energy Standard for Buildings Except Low-Rise Residential Buildings;

(2) For residential buildings, the process shall be consistent with the requirements of RESNET National Home Energy Rating Technical Guidelines, 2006 (chapter 3 and Appendix A of 2006 Mortgage Industry National Home Energy Rating System Standards).

(g) Reductions in energy usage due to the ECM shall be based upon actual energy usage data. Energy simulation modeling shall only be used to determine the relative percentage contribution to total fuel usage for each respective fuel type of the application targeted by the ECM.

(h) Annual energy savings shall be determined in accordance with the following:

(1) "BEU_{AECM}" means the annual pre-installation baseline energy use by fuel type, in MMBtu, attributable to the application(s) to be targeted by the ECM(s), based upon annual fuel usage data for the most recent calendar year for which data are available. For new buildings, baseline energy use for a reference building equivalent in basic configuration, orientation, and location to the building in which the eligible ECM(s) is implemented shall be determined according to ASHRAE Guideline 14-2002, Measurement of Energy and Demand Savings and ANSI/ASHRAE/IESNA Standard 90.1-2004, Section 11 and Appendix G. Where energy simulation modeling is used to evaluate an existing building, modeling shall be conducted in accordance with ASHRAE Guideline 14-2002, Measurement of Energy and Demand Savings, and ANSI/ASHRAE/IESNA Standard 90.1-2004, Section 11 and Appendix G. For existing and new residential buildings, energy simulation modeling shall be conducted in accordance with the requirements of RESNET National Home Energy Rating Technical Guidelines, 2006 (chapter 3 and Appendix A of 2006 Mortgage Industry National Home Energy Rating System Standards);

(2) "$PIEU_{ECM}$" means the annual post-installation energy use by fuel type, in MMBtu, attributable to the ECM(s), to be verified based on annual energy usage after installation of the ECM(s), consistent with the requirements of ASHRAE Guideline 14-2002, Measurement of Energy and Demand Savings. Where energy simulation modeling is used to evaluate a new or existing building, modeling shall be conducted in accordance with ASHRAE Guideline 14-2002, Measurement of Energy and Demand Savings, and ANSI/ASHRAE/IESNA Standard 90.1-2004, Section 11 and Appendix G. For existing and new residential buildings, energy simulation modeling shall be consistent with the requirements of RESNET National Home Energy Rating Technical Guidelines, 2006 (chapter 3 and Appendix A of 2006 Mortgage

Industry National Home Energy Rating System Standards);

(3) "A" means the adjustments to account for any differing conditions during the pre-installation and post-installation time periods, such as weather (weather normalized energy usage based on heating and cooling degree days), building occupancy, and changes in building use or function. For commercial buildings, adjustments shall be consistent with the specifications of ASHRAE Guideline 14-2002, Measurement of Energy and Demand Savings, and ANSI/ASHRAE/IESNA Standard 90.1-2004, Section 11 and Appendix G. For residential buildings, adjustments shall be consistent with the specifications of RESNET National Home Energy Rating Technical Guidelines, 2006 (chapter 3 and Appendix A of 2006 Mortgage Industry National Home Energy Rating System Standards); and

(4) Energy savings shall be the product of the annual pre-installation baseline energy use by fuel type times the adjustments, minus the product of the annual post-installation baseline energy use by fuel type times the adjustments, as shown in the following equation:

Energy Savings (MMBtu) = $(BEU_{AECM} \times A) - (PIEU_{ECM} \times A)$

(i) Offset projects that implement similar ECMs in multiple residential buildings may employ representative sampling of buildings to determine aggregate baseline energy usage and energy savings. Sampling protocols shall employ sound statistical methods such that there is 95 percent confidence that the reported value is within 10 percent of the true mean. Any sampling plan shall be certified by an independent verifier, accredited pursuant to Env-A 4710.

PART Env-A 4709 STANDARDS FOR AVOIDED METHANE EMISSIONS FROM AGRICULTURAL MANURE MANAGEMENT OFFSET PROJECTS

Env-A 4709.01 Avoided Methane Emissions From Agricultural Manure Management Operations. To qualify for the award of CO_2 offset allowances under this chapter, offset projects that capture and destroy methane (CH_4) from animal manure and organic food waste using anaerobic digesters shall meet the requirements of this part and all other applicable requirements of this chapter.

Env-A 4709.02 Eligibility.

(a) Eligible offset projects shall consist of the destruction of that portion of CH_4 generated by an anaerobic digester that would have been generated in the absence of the offset project through the uncontrolled anaerobic storage of manure or organic food waste.

(b) Eligible offset projects shall employ only manure-based anaerobic digester systems using livestock manure as more than 50 percent of the mass input into the digester on an annual basis. Organic food waste used by an anaerobic digester shall only be that which would have been stored in anaerobic conditions in the absence of the offset project.

Env-A 4709.03 Exemption from Certain Limitations. The limitations specified in Env-A 4703.~~06~~***05***(b) and (c) shall not apply to agricultural manure management offset projects if either of the following requirements is met:

(a) The offset project is located in a state that has a market penetration rate for anaerobic digester projects, determined in accordance with Env-A 4709.04, of 5 percent or less;

(b) The offset project is located at a farm with 4,000 or fewer head of dairy cows, or a farm with

equivalent animal units, assuming an average live weight for dairy cows (lbs./cow) of 1,400 lbs.; or

(c) If the project is a regional digester, total annual manure input to the digester is designed to be less than the average annual manure produced by a farm with 4,000 or fewer head of dairy cows, or a farm with equivalent animal units, assuming an average live weight for dairy cows (lbs./cow) of 1,400 lbs.

Env-A 4709.04 Market Penetration Determination. The market penetration determination shall:

(a) Use the most recent market data available at the time of submission of the consistency application under Env-A 4704; and

(b) Be determined as follows:

(1) "MG_{AD}" means the average annual manure generation for the number of dairy cows and swine serving all anaerobic digester projects in the applicable state at the time of submission of a consistency application pursuant to Env-A 4704;

(2) "MG_{STATE}" means the average annual manure generation for all dairy cows and swine in the state at the time of submission of a consistency application pursuant to Env-A 4704; and

(3) Market penetration (MP), expressed as a percent, equals MG_{AD} divided by MG_{STATE}, as shown in the following equation:

$$MP\ (percent) = MG_{AD} / MG_{STATE} \times 100$$

Env-A 4709.05 Supplemental Information. The supplemental information required by Env-A 4704.02(d) shall include the following:

(a) The name, mailing address, electronic mail address, daytime telephone number, facsimile transmission number, and account number of each owner and each operator of the offset project, provided that if any owner or operator is the same as the project sponsor, the project sponsor's information may be cross-referenced;

(b) The location and specifications of the facility where the offset project will occur;

(c) The name, mailing address, electronic mail address, daytime telephone number, facsimile transmission number, and account number of each owner and each operator of the facility where the offset project will occur, provided that if any owner or operator is the same as the project sponsor, the project sponsor's information may be cross-referenced;

(d) Specifications of the equipment to be installed and a technical schematic of the offset project; and

(e) The location and specifications of each facility from which anaerobic digester influent will be received, if different from the facility where the offset project will occur.

Env-A 4709.06 Emissions Baseline Determination.

(a) The emissions baseline shall represent the potential emissions of the CH_4 that would have been produced in a baseline scenario under uncontrolled anaerobic storage conditions and released directly to the atmosphere in the absence of the offset project.

(b) Baseline CH_4 emissions shall be calculated as follows:

(1) "CO_2e" means potential CO_2e emissions due to calculated CH_4 production under site-specific anaerobic storage and weather conditions;

(2) "V_m" means the volume of CH_4 produced each month from degradation of volatile solids in a baseline uncontrolled anaerobic storage scenario under site-specific storage and weather conditions for the facility at which the manure or organic food waste is generated, measured in cubic feet (ft^3);

(3) "M" means the mass of CH_4 per cubic foot, which equals 0.04246 lb/ft^3 as a default value at one atmosphere and 20 ° C;

(4) "GWP" means the global warming potential of CH_4, which equals 23; and

(5) Potential CO_2e emissions equals the global warming potential of CH_4 multiplied by the product of V_m times M divided by 2000, as shown in the following equation:

$$CO_2e \text{ (tons)} = [(V_m \times M)/2000] \times GWP$$

(c) The estimated amount of volatile solids degraded each month under the uncontrolled anaerobic storage baseline scenario (VS_{deg}), in kilograms (kg), shall be calculated as follows:

(1) "M_m" means the mass of manure or organic food waste produced per month, in kg;

(2) "TS percent" means the concentration (percent) of total solids in manure or organic food waste as determined through EPA 160.3 testing method (U.S.EPA Method Number 160.3, Methods for the Chemical Analysis of Water and Wastes (MCAWW) (EPA/600/4-79/020));

(3) "VS percent" means the concentration (percent) of volatile solids in total solids as determined through EPA 160.4 testing method (U.S.EPA Method Number 160.4, Methods for the Chemical Analysis of Water and Wastes (MCAWW) (EPA/600/4-79/020));

(4) "VS" means volatile solids, calculated by multiplying M_m times TS percent times VS percent, as shown in the following equation:

$$VS = M_m \times \text{TS percent} \times \text{VS percent}$$

(5) "VS_p" means the volatile solids present in manure or organic food waste storage at beginning of month, left over from the previous month, in kg;

(6) "VS_{in}" means the volatile solids added to manure or organic food waste storage during the course of the month, in kg, which is multiplied by a factor of 0.5 to represent the average mass of volatile solids available for degradation for the entire duration of the month;

(7) "VS_{out}" means the volatile solids removed from the manure or organic food waste storage for land application or export, which is an assumed value based on standard farm practice;

(8) "VS_{avail}" means the volatile solids available for degradation in manure or organic food waste storage each month, calculated by adding VS_p to the product of VS_{in} times 0.5, and then subtracting VS_{out}, as shown in the following equation:

$$VS_{avail} = VS_p + (0.5 \times VS_{in}) - VS_{out}$$

(9) "E" means the activation energy constant, or 15,175 cal/mol;

(10) "T_2" means the average monthly ambient temperature for the facility where manure or organic food waste is generated, converted from degrees Celsius to degrees Kelvin, as determined from the nearest National Weather Service certified weather station, if the reported temperature in degrees C is greater than 5 degrees C; or if the reported temperature in degrees C is less than 5 degrees C, then f = 0.104

(11) "T_1" means 303.15, which is 30 degrees C converted to degrees K;

(12) "GC" means the ideal gas constant, or 1.987 cal/K mol;

(13) "f" means the van't Hoff-Arrhenius factor, or the conversion efficiency of VS to CH_4 per month, for a specific month, as determined by the exponential of the quotient of the product of the activation energy constant and the temperature difference divided by the product of the ideal gas constant and the temperatures, as shown in the following equation:

$$f = \exp\{[E(T_2 - T_1)]/[(GC \times T_1 \times T_2)]\}$$

(14) VS_{deg} equals VS_{avail} multiplied by f, as shown in the following equation:

$$VS_{deg} = VS_{avail} \times f$$

(d) The volume of CH_4 produced in cubic feet (ft^3) from degradation of volatile solids shall be calculated as follows:

(1) "V_m" means the volume of CH_4 produced, in ft^3;

(2) "VS_{deg}" means the volatile solids degraded, in kilograms (kg), calculated as specified in (c), above;

(3) "B_o" means the manure or organic food waste type-specific maximum methane generation constant, in cubic meters of CH_4 per kilogram of volatile solids degraded (m^3 CH_4/kg VS degraded), as per (e), below; and

(4) V_m equals VS_{deg} multiplied by B_o multiplied by 35.3147, as shown in the following equation:

$$V_m = (VS_{deg} \times B_o) \times 35.3147$$

(e) For dairy cow manure, B_o equals 0.24 m^3 CH_4/kg VS degraded. The methane generation constants for other types of manure shall be those cited at U.S. EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2004, Annex 3, Table A-162 (U.S. EPA, April 2007) (EPA Inventory), unless the project sponsor proposes to use an alternate methane generation constant. If the project sponsor proposes to use a methane generation constant other than the ones found in the EPA Inventory, the project sponsor shall provide justification and documentation to the department.

Env-A 4709.07 Calculating Emissions Reductions.

(a) Emissions reductions shall be determined based on the potential emissions, in tons of CO_2e, of the CH_4 that would have been produced in the absence of the offset project under a baseline scenario that represents uncontrolled anaerobic storage conditions, as calculated pursuant to Env-A 4709.06, and released directly to the atmosphere.

(b) Claimed emissions reductions shall not exceed the potential emissions of the anaerobic digester, as represented by the annual volume of CH_4 produced by the anaerobic digester, as monitored pursuant to Env-A 4709.08.

(c) If the project is a regional digester, CO_2 emissions due to transportation of manure and organic food waste from the facility where the manure and organic food waste was generated to the anaerobic digester shall be subtracted from the emissions reduction calculated pursuant to Env-A 4709.06.

(d) Transport CO_2 emissions shall be determined through one of the following methods:

(1) Documentation of transport fuel use for all shipments of manure and organic food waste from off-site to the anaerobic digester during each reporting year and a log of transport miles for each shipment, where CO_2 emissions shall be determined through the application of the following emissions factors, as applicable to the fuel type used:

a. Diesel fuel: 22.912 lbs. CO_2 per gallon;

b. Gasoline: 19.878 lbs. CO_2 per gallon; and

c. Other fuel: submitted emissions factor consistent with the factors listed in the EPA Inventory.

(2) Documentation of total tons of manure and organic food waste transported from off-site for input into the anaerobic digester during each reporting year, as monitored pursuant to Env-A 4709.08, and a log of transport miles and fuel type used for each shipment where CO_2 emissions shall be determined through the application of the following transport emission factor as applicable to the fuel type used:

a. Diesel fuel: 0.131 lbs. CO_2 per ton of material per mile traveled (ton-mile);

b. Gasoline: 0.133 lbs. CO_2 per ton-mile; and

c. Other fuel: submitted emissions factor consistent with the factors listed in the EPA Inventory.

Env-A 4709.08 Monitoring and Verification Requirements.

(a) Offset projects under this part shall employ a system that provides metering of biogas volumetric flow rate and determination of CH_4 concentration.

(b) Annual monitoring and verification reports required by Env-A 4711.02(b) shall include monthly biogas volumetric flow rate and CH_4 concentration determinations.

(c) If the offset project is a regional digester, the following shall also apply:

(1) Manure and organic food waste from each distinct source supplying to the anaerobic digester shall be sampled monthly to determine the amount of volatile solids present;

(2) Any emissions reduction shall be calculated according to the mass of manure and organic food waste, in kilograms (kg), being digested and the percentage of volatile solids present before digestion, calculated in accordance with Env-A 4709.06 and Env-A 4709.07, and apportioned accordingly among sources; and

(3) The project sponsor shall provide supporting material and receipts tracking the monthly receipt of manure and organic food waste, in kg, used to supply the anaerobic digester from each supplier.

(d) If the offset project includes the digestion of organic food waste as provided in Env-A 4709.02(b), organic food waste shall be sampled monthly to determine the amount of volatile solids present before digestion, calculated in accordance with Env-A 4709.06 and Env-A 4709.07, and apportioned accordingly.

(e) The project sponsor shall submit a monitoring and verification plan as part of the consistency application that:

(1) Includes a quality assurance and quality control program associated with equipment used to determine biogas volumetric flow rate and CH_4 composition;

(2) Is specified in accordance with the applicable monitoring requirements listed in Env-A 4709.09, Table 4709-1;

(3) Includes provisions for ensuring that measuring and monitoring equipment is maintained, operated, and calibrated based on manufacturer's recommendations; and

(4) Includes provisions for the retention of maintenance records for audit purposes; and

(5) Reuqires biogas CH_4 composition to be verified quarterly through gas sampling and third party laboratory analysis using applicable U.S. EPA test methods.

(f) The monitoring and verification plan shall be certified by an independent verifier accredited pursuant to Env-A 4710.

Env-A 4709.09 Monitoring Requirements for Digester Inputs. All materials input to the digester shall be monitored in accordance with the requirements specified in Table 4709-1:

Table 4709-1 Input Monitoring Requirements

Input Parameter	Measurement Unit	Frequency of Sampling	Sampling Method(s)
Influent flow (mass) into the digester	Kilograms (kg) per month, wet weight	Monthly total into the digester	a) Recorded weight b) Digester influent pump flow c) Livestock population and application of American Society of Agricultural and Biological

			Engineers (ASABE) standard (ASAE D384.2, March 2005)
Influent total solids concentration (TS)	Percent of sample	Monthly	U.S. EPA Method Number 160.3, Methods for the Chemical Analysis of Water and Wastes (MCAWW) (EPA/600/4-79/020)
Influent volatile solids (VS) concentration	Percent of TS	Monthly	U.S. EPA Method Number 160.4, Methods for the Chemical Analysis of Water and Wastes (MCAWW) (EPA/600/4-79/020)
Average monthly ambient temperature	Temperature, °C	Monthly based on farm averages	Closest National Weather Service-certified weather station

PART Env-A 4710 ACCREDITATION OF INDEPENDENT VERIFIERS

Env-A 4710.01 Application for Accreditation.

(a) Any individual who wishes to become an independent verifier to provide verification services as required of project sponsors under this chapter shall apply to the regional organization in accordance with this part.

(b) Subject to (c), below, an application for accreditation shall be submitted in writing to the regional organization and include the following:

(1) The applicant's name, address, electronic-mail address, daytime telephone number, and facsimile transmission number;

(2) Documentation that the applicant has at least 2 years of experience in each of the knowledge areas specified in Env-A 4710.04;

(3) Documentation that the applicant has successfully completed the requirements specified in Env-A 4710.06;

(4) A sample of at least one work product that provides supporting evidence that the applicant meets the requirements of Env-A 4710.04 and Env-A 4710.05, which has been produced, in whole or part, by the applicant and consists of a final report or other material provided to a client under contract in previous work, provided that for a work product that was jointly produced by the applicant and another entity, the role of the applicant in the work product shall be clearly explained;

(5) Documentation that the applicant holds professional liability insurance as required pursuant to Env-A 4710.05(c); and

(6) Documentation that the applicant has implemented an adequate management protocol to address and remedy any conflict of interest issues that may arise, as required pursuant to Env-A 4710.05(d).

(c) An application for accreditation shall not contain any proprietary information.

Env-A 4710.02 Action on Applications for Accreditation.

(a) The regional organization shall review an application submitted pursuant to Env-A 4710.01 to determine whether it is in an approved form and contains all information needed for the purpose of commencing review of the application.

(b) If the application is complete, the regional organization shall notify the applicant and proceed to a substantive review of the application as specified in (d), below.

(c) If the consistency application is incomplete, the regional organization, shall notify the applicant in writing of the information that is missing and specify a reasonable deadline for the applicant to provide the information. If the applicant does not provide the information by the specified deadline, the application shall be denied.

(d) After the regional organization determines that an application for accreditation is complete, the department shall review the application to determine whether it meets all requirements for accreditation specified in this part. If the department determines that the information submitted is inadequate to allow the department to independently conclude that the requirements are met, the department shall direct the regional organization to request such additional information from the applicant as is necessary to enable the department to reach a conclusion. If such requested information is not provided, the department shall deny the application.

(e) The department shall approve an application for accreditation if the application demonstrates that the applicant meets all requirements for qualification specified in this part.

(f) The department shall make the decision to approve or deny within 45 days of receipt of a complete application and direct the regional organization to notify the applicant in writing of the department's decision. If the decision is to deny the application, the written notice shall specify the reason(s) for the denial.

(g) Upon approval of an application for accreditation, the independent verifier shall be accredited for a period of 3 years from the date of application approval, unless the accreditation is revoked sooner pursuant to Env-A 4710.08.

Env-A 4710.03 Reciprocity. An independent verifier who holds a valid accreditation from any other participating state shall be deemed to be accredited in New Hampshire.

Env-A 4710.04 Standards for Accreditation: Knowledge. Each accredited verifier shall demonstrate knowledge of the following topics:

(a) Applying engineering principles;

(b) Quantifying greenhouse gas emissions;

(c) Developing and evaluating air emissions inventories;

(d) Auditing and accounting principles;

(e) Knowledge of information management systems;

(f) Knowledge of all applicable requirements of this chapter; and

(g) Such other knowledge as may be required to provide competent verification services for individual offset categories specified in Env-A 4705 through Env-A 4709.

Env-A 4710.05 Standards for Accreditation: Organizational Qualifications. An applicant for accreditation as an independent verifier shall:

(a) Have no direct or indirect financial relationship, beyond a contract for provision of verification services, with any offset project developer or project sponsor;

(b) Employ staff with professional licenses, knowledge, and experience appropriate to the specific category(ies) of offset projects listed in Env-A 4705 through Env-A 4709 that the verifier seeks to verify;

(c) Hold a minimum of one million U.S. dollars ($1,000,000 U.S.) of professional liability insurance, provided that if the insurance is in the name of a related entity, the verifier shall disclose the financial relationship between the verifier and the related entity, and provide documentation supporting the description of the relationship and the availability of the insurance to the verifier; and

(d) Demonstrate that he or she has implemented a management protocol that is adequate to:

(1) Identify potential conflicts of interest with regard to an offset project, offset project developer, or project sponsor, or any other person with a direct or indirect financial interest in an offset project that is seeking or has been granted approval of a consistency application pursuant to the provisions of Env-A 4704; and

(2) Remedy any such conflicts of interest prior to providing verification services.

Env-A 4710.06 Standards for Accreditation: Pre-Qualification of Verifiers. The department shall require prospective verifiers to successfully complete a training course, workshop, or test developed by the department in conjunction with the regional organization prior to submitting an application for accreditation.

Env-A 4710.07 Conduct of Accredited Verifiers.

(a) Prior to engaging in verification services for an offset project sponsor, the accredited verifier shall disclose all relevant information to the department, through the regional organization, to allow the department to evaluate potential conflicts of interest with respect to an offset project, offset project developer, or project sponsor. The accredited verifier shall disclose information concerning its ownership, past and current clients, related entities, as well as any other facts or circumstances that have the potential to create a conflict of interest.

(b) An accredited verifier shall have an ongoing obligation to disclose to the department, through the regional organization, any facts or circumstances that may give rise to a conflict of interest with respect to an offset project, offset project developer, or project sponsor.

(c) The department shall reject a verification report and certification statement from an accredited verifier, submitted as part of a consistency application required pursuant to Env-A 4704.04 or submitted as part of a monitoring and verification report submitted pursuant to Env-A 4711.02, if the department determines that:

(1) The accredited verifier has a conflict of interest related to the offset project, offset project developer, or project sponsor; and

(2) The conflict is such that the independence and objectivity of the verifier are in doubt.

(d) An accredited verifier shall have an ongoing obligation to disclose to the department, through the regional organization, any changes in accreditation status in any other participating state.

Env-A 4710.08 Revocation of Accreditation.

(a) If the department receives information suggesting that good cause as specified in (b), below, exists to revoke the accreditation of a verifier, the department shall notify the verifier that accreditation shall be revoked. The notice shall also inform the verifier of the opportunity to request a hearing in accordance with the provisions of RSA 541-A and Env-C 200 applicable to adjudicative proceedings.

(b) Good cause to revoke the accreditation of a verifier shall include:

(1) Failure to fully disclose any issues that may lead to a conflict of interest situation with respect to an offset project, offset project developer, or project sponsor;

(2) The verifier is no longer qualified due to changes in staffing or other criteria;

(3) Negligence or neglect of responsibilities pursuant to the requirements of this chapter;

(4) Intentional misrepresentation of data or other intentional fraud; and

(5) Loss of accreditation in another participating state.

PART Env-A 4711 AWARD OF CO_2 OFFSET ALLOWANCES

Env-A 4711.01 Award and Recordation of CO_2 Offset Allowances.

(a) Following the issuance of a consistency determination under Env-A 4704.07(f) and the approval of a monitoring and verification report under Env-A 4711.05, the department shall award one CO_2 offset allowance for each ton of demonstrated reduction in CO_2 or CO_2 equivalent emissions or sequestration of CO_2 from a CO_2 offset project.

(b) Subject to (c), below, following the issuance of a consistency determination under Env-A 4704.07(g), the department shall award one CO_2 offset allowance for each ton of reduction of CO_2 or CO_2 equivalent or sequestration of CO_2, represented by the relevant CO_2 credits or allowances retired.

(c) If a retired credit or allowance is represented in metric tons, the department shall award 1.1023 tons for every metric ton, with the total CO_2 offset allowances awarded rounded down to the nearest whole ton.

(d) After CO_2 offset allowances are awarded under (a) through (c), above, the department shall direct the regional organization to record such CO_2 offset allowances in the project sponsor's general account.

Env-A 4711.02 Required Submittal of Monitoring and Verification Reports.

(a) For ***that portion of an*** CO_2 offset project~~s undertaken~~ ***completed*** prior to January 1, 2009, the project sponsor shall submit the monitoring and verification report covering the pre-2009 period by ~~June~~

~~30, 2009~~ ***December 31, 2009***.

(b) For on-going CO_2 offset projects and CO_2 offset projects ~~undertaken~~ ***initiated*** on or after January 1, 2009, the project sponsor shall submit a monitoring and verification report ***by the later of December 31, 2009 or*** within 6 months following the completion of the last calendar year during which the offset project achieved CO_2 equivalent reductions or sequestration of CO_2 for which the project sponsor seeks the award of CO_2 offset allowances.

Env-A 4711.03 Contents of Monitoring and Verification Reports. For an offset project, the monitoring and verification report shall include the following:

(a) The project's sponsor's name, address, electronic-mail address, daytime telephone number, facsimile transmission number, and account number;

(b) The CO_2 emissions reduction or CO_2 sequestration determination as required by the relevant provisions of Env-A 4705 through Env-A 4709, including a demonstration that the project sponsor has complied with the required quantification, monitoring, and verification procedures of Env-A 4705 through Env-A 4709, as well as those outlined in the consistency application approved pursuant to Env-A 4704.07(f) or (g).

(c) A signed statement that reads as follows:

> "The undersigned project sponsor hereby confirms and attests that the offset project upon which this monitoring and verification report is based is in full compliance with all of the requirements of Env-A 4700. The project sponsor holds the legal rights to the offset project, or has been granted the right to act on behalf of a party that holds the legal rights to the offset project. I understand that eligibility for the award of CO_2 offset allowances under Env-A 4700 is contingent on meeting the requirements of Env-A 4700. I authorize the department or its agent to audit this offset project for purposes of verifying that the offset project, including the monitoring and verification plan, has been implemented as described in the consistency application that was the subject of a consistency determination by the department. I understand that this right to audit shall include the right to enter the physical location of the offset project and to make available to the department or its agent any and all documentation relating to the offset project at the department's request. I submit to the legal jurisdiction of New Hampshire."

(d) A certification signed by the offset project sponsor certifying that all offset projects for which the sponsor has received offset allowances under this chapter, or similar provisions in the rules of other participating states, under the sponsor's ownership or control, or under the ownership or control of any entity which controls, is controlled by, or has common control with the sponsor, are in compliance with all applicable requirements of Env-A 4600 and with the CO_2 budget trading program in all participating states;

(e) A verification report and certification statement signed by an independent verifier accredited pursuant to Env-A 4710 documenting that the independent verifier has reviewed the monitoring and verification report and evaluated the following in relation to the applicable requirements of Env-A 4705 through Env-A 4709:

> (1) The adequacy and validity of information supplied by the project sponsor to determine CO_2 emissions reductions or CO_2 sequestration pursuant to the applicable requirements of Env-A 4705 through Env-A 4709;
>
> (2) The adequacy and consistency of methods used to quantify, monitor, and verify CO_2

emissions reductions and CO_2 sequestration in accordance with the applicable requirements of Env-A 4705 through Env-A 4709 and as outlined in the consistency application approved pursuant to Env-A 4704.07(f) or (g); and

(3) The adequacy and validity of information supplied by the project sponsor to demonstrate that the offset project meets the applicable eligibility requirements of Env-A 4705 through Env-A 4709;

(f) Disclosure of any voluntary or mandatory programs, other than the CO_2 budget trading program, to which greenhouse gas emissions data related to the offset project have been or will be reported; and

(g) For offset projects located in a state that is not a participating state, a demonstration that the project sponsor has complied with all requirements of the cooperating department in the state where the offset project is located.

Env-A 4711.04 Limitation on Filing Reports. Monitoring and verification reports shall be filed under this part only for projects that have received consistency determinations under Env-A 4704.07(f) or (g). Monitoring and verification reports shall not be filed under this part for projects that have received consistency determinations in other participating states.

Env-A 4711.05 Action on Monitoring and Verification Reports.

(a) Within 45 days following receipt of a monitoring and verification report filed pursuant to this part, the regional organization shall review the report to determine whether it contains all required information.

(b) If the report is complete, the regional organization shall notify the project sponsor and proceed to a substantive review of the report as specified in (d) and (e), below.

(c) If the report is incomplete, the regional organization shall notify the project sponsor in writing of the information that is missing and specify a reasonable deadline for the project sponsor to provide the information. If the project sponsor does not provide the information by the specified deadline, the report shall be rejected and no allowances shall be awarded.

(d) After determining that a report is complete, the department shall review the report to determine whether it meets the requirements specified in Env-A 4703 and Env-A 4705 through Env-A 4709, as applicable. If the department determines that the information submitted is inadequate to allow the department to independently conclude that the requirements are met, the department shall direct the regional organization to request such additional information from the project sponsor as is necessary to enable the department to reach a conclusion. If the information is not provided, the report shall be rejected and no allowances shall be awarded.

(e) Within 45 days of receiving a complete report, the department shall issue a determination as to whether the report meets the requirements specified in Env-A 4703 and Env-A 4705 through Env-A 4709, as applicable. If the requirements are not met, the determination shall identify the requirement(s) that are not met.

APPENDIX

Rule Section(s)	State or Federal Statute or Federal Regulation Implemented
Env-A 4600	RSA 125-O:19-28